



JULY/AUGUST 2022



THREE CHEERS FOR THE
**RED, WHITE, AND
BLUEBIRD**



CONTENTS

FEATURES

6 Red, White, and Bluebird

Join an all-American couple in their quest to raise a feathered family.

12 Nature's Fireworks Show

Make this mini field guide to learn about summer wildflowers.

CREATURE FEATURE

10 Scissor-Tailed Flycatcher

Pull out this poster and tape it to your wall to make your room look wild.

DEPARTMENTS

2 Strange but True

3 What Is It?

3 Ask an Opossum

4 How To

18 Xplor More

20 Get Out!

21 Go Find It!



The circle behind an American bullfrog's eye is its eardrum. A boy bullfrog's eardrum is bigger than its eye. A girl bullfrog's eardrum is the same size or smaller than its eye. Do you think this frog is a boy or a girl?

 by Noppadol Paothong

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ON THE COVER**Eastern Bluebird**

by Noppadol Paothong

STRANGE BUT TRUE

Your guide to all the
UNUSUAL, UNIQUE,
AND UNBELIEVABLE
stuff that goes on in nature

Squish! Before eating, an **EASTERN MOLE** uses its oversized front paws to squeeze a worm along its length — like a slimy tube of toothpaste. This helps remove dirt from the outside of the worm and poop from the inside.



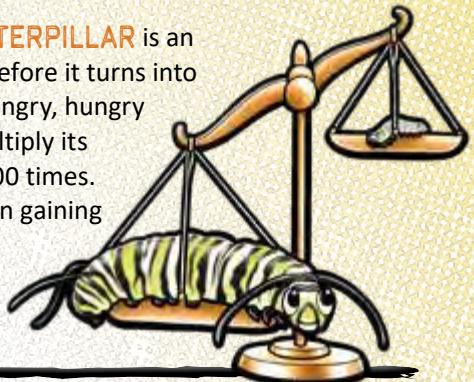
Big-brained, not birdbrained: Although tool use is rare in birds, **AMERICAN CROWS** have been seen using a cup to pour water over dry food. And New Caledonian crows, which live on Pacific islands, use twigs to spear grubs.

About one out of every 500 **KATYDIDS** is pink instead of green. When green and pink katydids mate, most of the babies are pink. But because they stick out like bubblegum on a bedpost, most of the pink ones get eaten by predators.

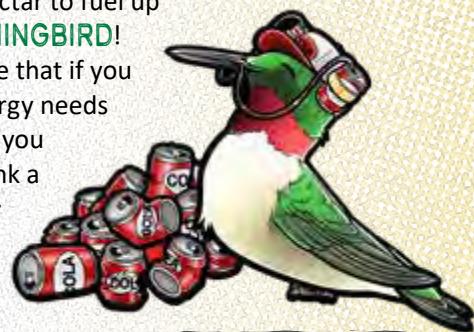


A **RATTLESNAKE** shakes its tail to create a rattling sound. The noise warns other animals to **STAY AWAY!** But the snake has another trick to its tail: It can increase the tempo of the rattle, which makes the sneaky snake sound closer than it actually is.

A **MONARCH CATERPILLAR** is an eating machine. Before it turns into a butterfly, the hungry, hungry caterpillar will multiply its weight nearly 2,500 times. That's like a person gaining the weight of two blue whales in about two weeks.



It takes a lot of nectar to fuel up a hovering **HUMMINGBIRD**! Biologists estimate that if you had the same energy needs as this buzzy bird, you would have to drink a can of soda nearly every minute to survive.



Ultraviolet light, like the kind put out by black lights, makes a **SCORPION** glow bluish-green. Scientists aren't sure why the stinger-tipped creepy-crawlies gleam, but it may help scorpions sense light waves so they can seek shelter to hide from predators.



WHAT IS IT?

DON'T KNOW? Jump to page 21 to find out.

- 1 My body is clear like a ghost.
- 2 Unlike my cousins who live on the coast.
- 3 I like clean, fresh water the most.
- 4 If there's too much pollution, I'm toast.



Ask an opossum

Hi! I'm Phi, *Xplor*'s mail possum. I know a lot about nature. If you have a question, email me at AskPhi@mdc.mo.gov.



Q: Can salamanders bite you?
— From Zoey, age 9

A: Salamanders have teeth to help them chew worms and other small prey. But most are too shy to bite people. (You'd be shy too if a giant hand picked you up!) And most are quite small, so their teeth feel more like sandpaper than the sharp chompers on your bitey baby brother. Larger salamanders, like amphiumas and hellbenders, have bigger teeth. If one of them nibbled your thumb, it could make you yell, "Yee-ouch!"

HOW TO

SNORKEL AN OZARK STREAM



You don't have to explore a coral reef or visit an aquarium to find flashy fish. Strap on a diving mask, peer into a clear Ozark stream, and you'll be amazed at the rainbow of life you find.



HERE'S WHAT YOU NEED

- A face mask or goggles form a watertight seal around your eyes so you can see underwater.
- A snorkel isn't essential, but it allows you to breathe while your face is in the water.
- Wearing a life jacket keeps you safe and makes it easier to swim.
- Swim fins aren't necessary, but they make it easier to swim against the current. If you go without flippers, a pair of old sneakers will protect your feet from sharp rocks.
- A quick-drying, long-sleeved shirt and sunscreen protect you from sunburn.
- Don't forget a towel to dry off with when you're done.



HERE'S WHAT YOU DO

- Find a grown-up to go with you.
- Before putting on your mask, rub spit on the inside glass then rinse it off in the stream. It sounds yucky, but this will keep the glass from fogging up. Wetting your face will help form a tight seal with the mask so water doesn't leak inside.
- Swim from downstream to upstream so any pebbles or mud you stir up washes behind you and doesn't cloud your view ahead. Move slowly and stop often to see what shows up.
- Be sure to explore a variety of habitats: swift-flowing riffles, calm pools, eddies behind boulders and cobbles. You'll find different animals in each place.
- Heads up! Little sunfish may nip at the hair on your arms and legs. They're completely harmless but may startle you when they pull your hair.

HERE'S WHAT YOU'LL SEE

Minnows, shiners, and sunfish of every color often school in the calm water behind boulders.



Keep your eyes peeled for animals hiding among the pebbles at the bottom of the stream.



If you spot a tiny puff of sand, don't move a muscle — it might be a mussel. The clamlike animals lie half-buried at the bottoms of streams.



RED, WHITE, AND BLUEBIRD

What's red, white, and blue, and flutters over backyards and city parks every summer? It's Missouri's most patriotic bird: the eastern bluebird.

COLORFUL COURSHIP

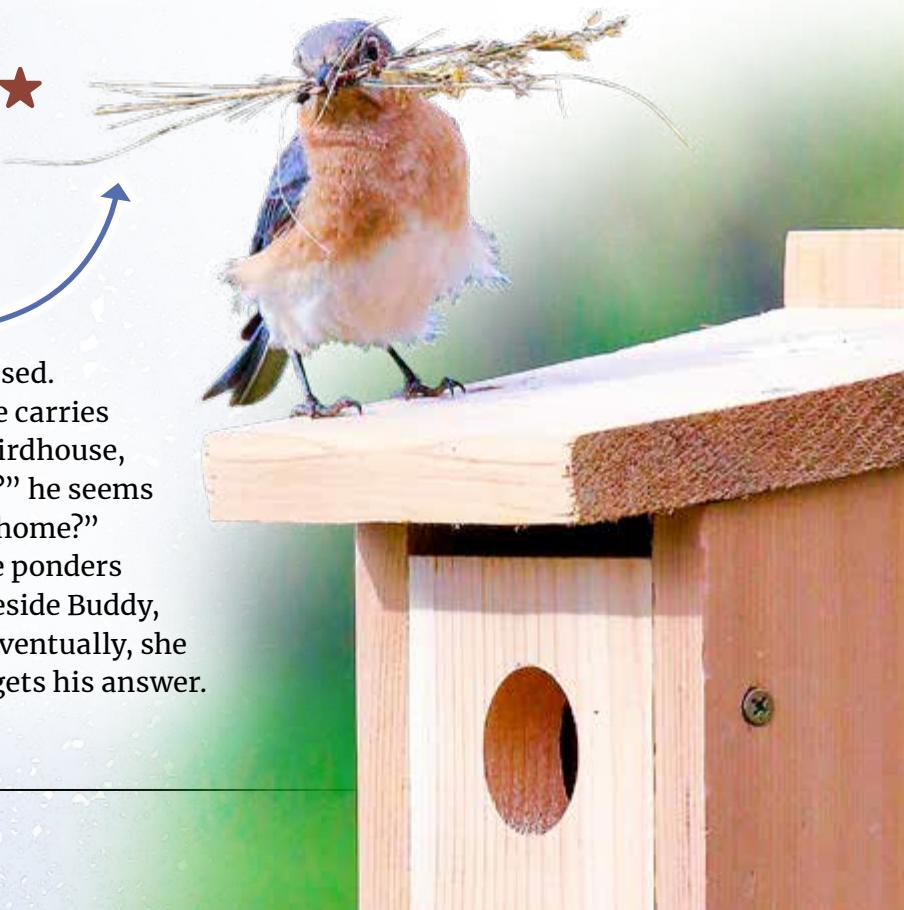
Buddy the bluebird is showing off again. He flies to the roof of a birdhouse, flutters his cobalt wings, and **waves around a beakful of dead grass.**

His girlfriend, Bessie, seems unimpressed.

Unfazed, Buddy tries another tactic. He carries the nesting supplies into and out of the birdhouse, over and over again. "What do you think?" he seems to be asking. "Wouldn't this be a perfect home?"

From her perch in a nearby tree, Bessie ponders his proposal. She swoops down to land beside Buddy, who's back to waving his grass around. Eventually, she disappears inside the birdhouse, and he gets his answer.

Bessie will raise a family with him.



HOME TWEET HOME

In spring, summer, and fall, eastern bluebirds are seen across the Show-Me State in savannas, pastures, cemeteries, city parks, and backyards — anywhere with short grass and a few scattered trees.

Bluebirds nest in **hollowed-out holes**. Their beaks aren't sturdy enough to hammer out openings of their own. So they have to reuse cavities created by woodpeckers or birdhouses built by people.

Other birds use these holes, too. All spring long, Buddy stays busy **chasing away tree swallows**, chickadees, and other bluebirds who want his home for their own. *Get off my lawn!*





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CATERPILLAR PATROL

Perched on a low branch, Buddy watches the ground below. *Swoooop!* As soon as he spots movement, he dives down to pounce on a little green caterpillar crawling through the thick green grass. Like all bluebirds, Buddy has excellent eyesight and can spy a tiny insect from over 60 feet away.

It's a good thing, too. Now that Bessie's eggs have hatched, Buddy has four more mouths to feed. From sunup to sundown, he nabs caterpillars, crickets, beetles, and any other insect he can put his beak on. He eats a few himself — *nom, nom, nom!* — but most morsels get delivered to the nestbox to feed Bessie and the babies.

In a few days, once the chicks can be left alone for short stretches, Bessie will join Buddy in finding food for the hungry youngsters.



LIFE OUTSIDE THE BOX

A parent's work is never done. Young bluebirds leave the nest when they're about 18 days old — but that doesn't mean they can survive on their own. Buddy and Bessie are now busier than ever.

When predators, like house cats and hawks, creep too close, the grown-ups snap their bills and give angry scolding calls to warn their kids. They teach the fledglings how to swoop and pounce on bugs. And, until the little birds master bug-catching, Buddy and Bessie have to keep stuffing food down their hungry little beaks. Especially B.B.'s — he's always begging for more!

Teenage bluebirds don't look like grown-ups. Instead of snazzy red and white bellies, their undersides are brown and speckled.

The spots work like camouflage to help the youngsters hide from danger.

Bluebirds, robins, and thrushes are closely related. One way you can tell is because their babies all have **speckled bellies**.

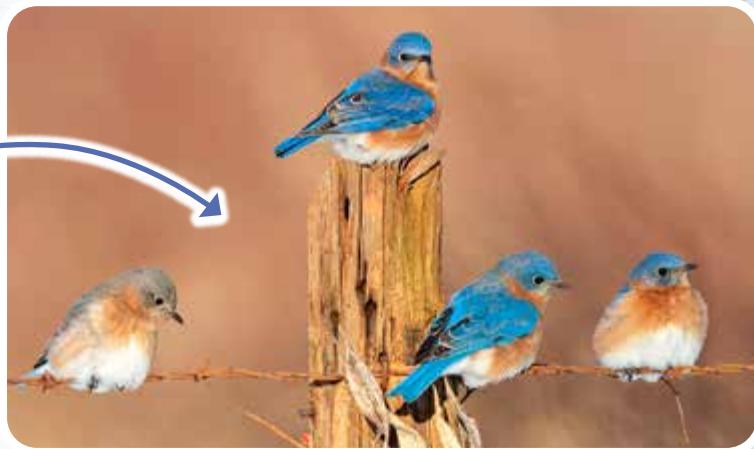
MENU MIX-UP

Later that summer, Buddy and Bessie raise a second batch of babies. Some bluebird couples even raise three broods in a year. *Whew!*

By fall, the kids have molted their drab teenage feathers and now sport the bedazzling blues, reds, and whites of grown-ups. As cold weather blows in, bluebirds begin to eat fewer insects and more berries, like sumac, dogwood, wild grapes, and even poison ivy.

Other changes are happening, too. During nesting season, Buddy and Bessie were grouchy neighbors. If another bird flew into their territory, they'd chatter angrily and chase it away. Now, the couple enjoys company. They join **small, happy flocks of other bluebirds** to scour the countryside for berries to eat.

Some bluebirds, especially those who live in northern Missouri, move south during winter. Buddy and Bessie stay put. On chilly days, they crowd into cavities with other bluebirds to huddle together for warmth.



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SINGING THE BLUES

Decades ago, eastern bluebird numbers took a nosedive. People used too many pesticides, which killed the insects that bluebirds liked to eat. Nest trees had been cut down to make room for new neighborhoods. And starlings and house sparrows, birds brought to the U.S. from Europe, had forced bluebirds out of the few natural cavities that remained.

Luckily, conservationists and nature lovers started building bluebird nestboxes. They put up thousands in backyards, city parks, and along fence rows across the eastern United States. Bluebirds seemed to like these new homes, and soon, their numbers began to rebound.

If you'd like to build a home for a bluebird family like Buddy and Bessie's, grab a grown-up (to help with construction) and visit audubon.org/news/how-build-bluebird-nest-box.

SCISSOR-TAILED FLYCATCHER







Nature's FIREWORKS Show

In summer, Missouri's roadsides, prairies, and other wild spaces explode with riots of colorful blooms, like nature's own fireworks display. But flowers don't just look pretty and smell good.

A flower's main job is to make baby plants. When pollen from one flower moves to another, it causes the flower to make seeds. Under the right conditions, seeds grow into new plants. Some plants use wind to move pollen. But many plants rely on bees, butterflies, and other animals to act as pollen delivery pilots.

Missouri has over 1,500 kinds of wildflowers. You could spend a lifetime learning to identify them all. The next time you go on a walk, why not start with just 12 showy species?

Use the
mini guide
to ID these
flowers!

First, Make This Field Guide

- 1 Cut out the next two pages along the dotted lines.
- 2 Fold each cutout down the middle.
- 3 Stack the cutouts so the pages are in numerical order.
- 4 Staple the cutouts together at the fold between pages 8 and 9.
- 5 Take your mini field guide on your next wildflower walk.



mdc.mo.gov

You Discover WILDFLOWERS



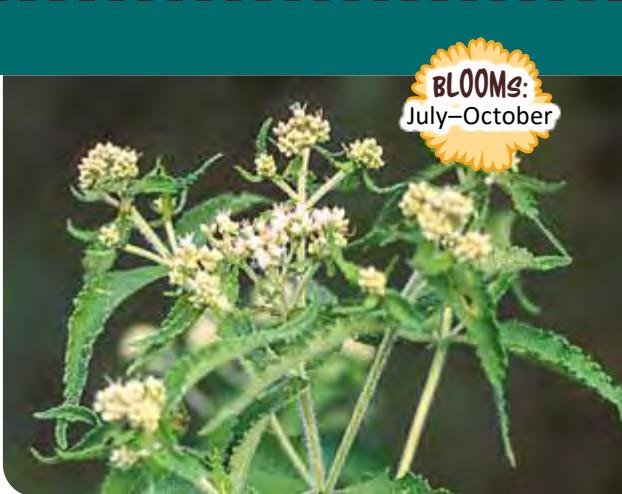
PURPLE CONEFLOWER

A Mini Field Guide to 12 Common Summer Flowers

16

1

Boneset



BLOOMS:
July–October

WHERE: Weedy fields, roadsides, pastures, along streams

ID CLUES

Silky fuzz covers the toothy leaves, giving them a silvery appearance. Near the top of the plant, the stem splits into multiple branches, each topped with an umbrella-shaped cluster of white flowers.

FUN FACT

Pairs of this plant's leaves are united (grow into each other) around the stem. Because of this appearance, people once made "medicine" from the plant to heal broken bones.

PREDATORS

Crab Spider

Crab spiders don't weave webs to catch prey. Instead, they sit atop flowers and rely on camouflage to stay hidden. When a fly buzzes by, the spider pounces.



Wheel Bug

Wheel bugs stab insects using their pointy beaks. Their spit turns a victim's insides to mush, which the wheel bug slurps up like an insect-flavored smoothie.



Robber Fly

This bug-eyed burglar steals lives. When an insect buzzes by, a robber fly zips off to ambush it. *Whack!* The robber jabs its knifelike mouth into the insect and injects venom to paralyze the victim.



Pollinators and Predators

Nectar and pollen that flowers produce attracts hard-working bees, butterflies, and other insects — and the predators that prey on them.

POLLINATORS

Bumblebee

To release stubborn pollen, a bumblebee clamps onto a flower and shivers its muscles. This makes a loud buzz that vibrates pollen out of the flower like salt from a shaker.



Flower Fly

If you saw this insect buzzing around, you'd keep your distance, right? But there's no need. Even though it looks and acts like a bee, it can't sting. It's a harmless fly.



Hummingbird Moth

To reach a flower's nectar, this day-flying moth is equipped with a freaky long tongue. Some hummingbird moths have tongues that are twice as long as their bodies!



2

REBEKAH D. WALLACE, UNIVERSITY OF GEORGIA, BUGWOOD.ORG

BLOOMS:
May–October

Daisy fleabane



WHERE: Pastures, roadsides, fence rows, and prairies

FUN FACT

Many people think of daisy fleabane as a weed. But it provides pollen and nectar for many insects and grows quickly on plowed areas, which helps prevent soil erosion.

ID CLUES

The 1-inch-wide flowers look like miniature daisies. The spear-shaped leaves are larger lower on the stem but get smaller the farther up you go.

Black-Eyed Susan

BLOOMS:
May–October



WHERE: Pastures, prairies, roadsides, and woods

ID CLUES

Flowers are 2–3 inches wide with dark-brown, cone-shaped centers surrounded by cheerful, sunshine-yellow petals (each “petal” is actually a flower itself). The leaves and stems feel hairy and scratchy.

FUN FACT

Native Americans boiled the root of this plant to make a tea they used to treat colds and other illnesses.

New England Aster

BLOOMS:
August–October



WHERE: Prairies, weedy fields, roadsides, the edges of woods

ID CLUES

Missouri has about 20 kinds of asters, but New England aster is our tallest, up to 6 feet. The showy flowers are the size of quarters, grow in clusters, and have golden centers and purple petals.

FUN FACT

This aster's showy flowers bloom long into autumn, providing lots of nectar to fuel late-migrating monarch butterflies.

4

13

Purple Coneflower



WHERE: Along the edges of woods, roadsides, and prairies

ID CLUES

Flowers are 3–5 inches wide with large, brown, cone-shaped centers surrounded by purple petals (each “petal” is actually a flower itself).

FUN FACT

In fall and winter, birds feast on the tiny seeds formed in the flower’s cone. Many people grow this attractive plant in their flower gardens.

Compass Plant



WHERE: Roadsides, fence rows, prairies, and pastures

ID CLUES

A compass plant’s bottommost leaves are huge, triangle-shaped, and lobed like an oak leaf. A flower stalk, 3–8 feet tall, has yellow, sunflower-like flowers at the top.

FUN FACT

If you’re lost on a prairie, find a compass plant. The bottommost leaves usually grow with their edges pointing north and south.

12

5

Prairie Blazing Star



WHERE: Prairies and roadsides

ID CLUES

Slender plants grow up to 5 feet tall and have grasslike leaves. The stem is topped by a spike of showy pinkish-purple flowers, which some people think looks like a purple cattail.

FUN FACT

Butterflies, bees, and even hummingbirds visit blooming blazing stars to sip nectar and gather pollen. Nine kinds of native blazing stars grow in Missouri.

Common Milkweed



WHERE: Almost anywhere, but especially pastures, roadsides, and fence rows

ID CLUES

Leaves are oval-shaped, about 6 inches long, and fuzzy underneath. Clusters of pinkish-purple flowers bloom atop the stems. If you break a milkweed’s leaf, milky sap oozes out.

FUN FACT

Milkweed is poisonous, but monarch caterpillars love to eat it anyway. The caterpillars aren’t harmed but become toxic themselves, which prevents birds from eating them.

10

7

Goldewrod



BLOOMS:
August–November

WHERE: Prairies, weedy fields, roadsides, the edges of woods

ID CLUES

Missouri has more than 20 kinds of goldenrod, and they're often difficult to tell apart. Most have tall stems (3–8 feet, depending on species) topped by many yellow flowers grouped in dense, spear- or club-shaped clusters.

FUN FACT

Contrary to popular belief, goldenrod doesn't cause allergies. Its pollen isn't blown by the wind. Instead, insects move it from flower to flower.

6

Tick Trefoil



BLOOMS:
July–September

WHERE: Edges of woods, wet fields, roadsides, and stream banks

FUN FACT

Some people call these plants "sticktights" or "beggar's lice" because the flat seeds cling to clothes, shoelaces, hair, and animal fur.

11

Wild Bergamot



BLOOMS:
May–August

WHERE: Weedy fields, prairies, roadsides, the edges of woods

ID CLUES

Frilly lavender or pink flowers, which smell good and look a bit like pompoms, bloom atop stems that are 2–5 feet tall. Plants often grow in dense colonies.

FUN FACT

Bergamot is a member of the mint family, and people use its aromatic leaves to make minty herbal tea.

8

Tall Thistle



BLOOMS:
July–October

WHERE: Roadsides, pastures, weedy fields

FUN FACT

American goldfinches line their nests with the long, silky seeds of thistles. Tall thistle is native, but many other thistles are from Europe and crowd out Missouri's native plants.

9

BUTTERFLY BOMBS

Butterfly bombs are little balls made of clay and wildflower seeds. You toss the bombs wherever you want a butterfly garden to grow. Rain will melt the clay and wash the seeds into the ground. In a few months, you'll have an explosion of wildflowers perfect for any butterflies that flutter by.



HERE'S WHAT YOU NEED



- * Potting soil
- * Powdered clay (available at craft stores)
- * Wildflower seeds (Make sure to choose wildflowers that are native to Missouri. Visit grownative.org for ideas on which seeds to use.)
- * Water

HERE'S WHAT YOU DO

- 1 Prepare to get dirty!
- 2 In a mixing bowl, combine five parts powdered clay, five parts potting soil, and one part wildflower seeds.
- 3 Add a tiny bit of water. You'll need just enough to make a thick, clay-like dough. Don't add too much at first. You can always add more water later.
- 4 Use your hands to roll the mixture into balls the size of large gum balls.
- 5 Put your butterfly bombs on an old newspaper and let them harden in a cool, dry place for at least three days.
- 6 Toss your butterfly bombs wherever you want wildflowers to grow.



XPLOR MORE

Backyard Bug Bingo

Your backyard in summer is all aflutter. How many butterflies, bees, and other busy insects can you find?





Instructions

Cut out the bingo cards. Bring the cards, a couple of friends, and some pencils outside. When you spot an insect that's listed on your card, put an "X" in the corresponding box. When you get five X's in a row, yell "Xplor!"

Warning: In "Backyard Bug Bingo" if you say "bingo" instead of "Xplor," you must erase one of your X's and continue to look for insects until you have five in a row again.



GET OUT!

FUN THINGS TO DO
AND GREAT PLACES
TO DISCOVER NATURE

RUBY-THROATED HUMMINGBIRDS
may be Missouri's tiniest bird, but they're also fearless. How bold are they? Hold your hand near a nectar feeder. With plenty of patience, you might convince a hungry hummer to perch on your finger!

Nothing beats a bowl of **ICE CREAM** after a steamy day of picking blackberries. In a food processor, blend 2 cups blackberries, 1 cup sugar, and $\frac{1}{2}$ cup water. Strain the mixture and add $\frac{1}{2}$ cup heavy cream. Chill the mixture for an hour then pour into an ice cream maker.



In late August, harmless **TEXAS BROWN TARANTULAS** leave burrows to search for mates. Look for Missouri's largest, hairiest, and (some would say) scariest spider crossing roads in southern Missouri.



To **SEE WHAT'S FLUTTERING AROUND YOUR YARD** after dark, hang a sheet between two trees and place a bright light behind it. Moths and other insects will be attracted to the light and gather on the sheet.



FISHING FOR SMALLMOUTH BASS on a cool Ozark stream is a great way to beat summer heat. For tips on where to fish, cast a line to short.mdc.mo.gov/4od.



Looking for more ways to have fun outside? Find out about Discover Nature programs in your area at mdc.mo.gov/events.

WHAT IS? IT?



GRASS SHRIMP

Mississippi grass shrimp are also called ghost shrimp because of their see-through bodies. The 2-inch-long crustaceans are related to saltwater shrimp but live in shallow, slow-moving streams and swampy areas near the Mississippi River. They hide from predators among aquatic plants and eat tiny insects, plankton, and algae. Grass shrimp are sensitive to water pollution, so finding them is a good clue that a stream or swamp is healthy.

GO FIND IT!



Cut out this critter card and take it with you outside.
How many of the things on the card can you find?



WESTERN RATSNAKE



BASKING IN THE BRANCHES

Ratsnakes love to climb trees to rest out of reach of predators and raid bird nests for eggs to eat.

NOT ALWAYS BLACK

Baby western ratsnakes are grayish-tan in color with dark-brown blotches. It takes two years for the youngsters to turn completely black.

SIZABLE SERPENTS

Although they can grow 7 feet long, most adult ratsnakes are 3 to 5 feet in length.

BEAT THE HEAT

Ratsnakes are active during the day most of the time. But when temperatures turn especially toasty, they hunt at night.

ALL-NATURAL PEST CONTROL

Mice and other rodents are a big part of a ratsnake's diet. They also eat small rabbits, birds, and eggs.

SUBSCRIBE ONLINE

mdc.mo.gov/xplor

FREE TO MISSOURI HOUSEHOLDS

Go FIND IT! 

Also known as “black snakes,” western ratsnakes are found throughout Missouri in wooded areas. For more on these riveting reptiles, slither over to mdc.mo.gov/field-guide.

WESTERN RATSNAKE

